

PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

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| Applicant's or agent's file reference 301263WO/DJWDG | FOR FURTHER ACTION See Form PCT/IPEA/416 | |
| International application No. PCT/IB 2003/003346 | International filing date (day/month/year) 22.07.2003 | Priority date (day/month/year) 02.08.2002 |
| International Patent Classification (IPC) or national classification and IPC H04Q 7/38 | | |
| Applicant Nokia Corporation et al | | |

- This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
- This REPORT consists of a total of 5 sheets, including this cover sheet.
- This report is also accompanied by ANNEXES, comprising:
 - ☒ (sent to the applicant and to the International Bureau) a total of 3 sheets, as follows:
 - ☒ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
 - ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
 - ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).
- This report contains indications relating to the following items:

| | |
|--|---|
| <input checked="" type="checkbox"/> Box No. I | Basis of the report |
| <input type="checkbox"/> Box No. II | Priority |
| <input type="checkbox"/> Box No. III | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability |
| <input type="checkbox"/> Box No. IV | Lack of unity of invention |
| <input checked="" type="checkbox"/> Box No. V | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input checked="" type="checkbox"/> Box No. VI | Certain documents cited |
| <input type="checkbox"/> Box No. VII | Certain defects in the international application |
| <input type="checkbox"/> Box No. VIII | Certain observations on the international application |

| | |
|---|--|
| Date of submission of the demand 12.02.2004 | Date of completion of this report 08.11.2004 |
| Name and mailing address of the IPEA/SE Patent- och registreringsverket Box 5055 S-102 42 STOCKHOLM Facsimile No. +46 8 667 72 88 | Authorized officer Catharina Karlsson /OGU Telephone No. +46 8 782 25 00 |

Form PCT/IPEA/409 (cover sheet) (January 2004)

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/IB 2003/003346

Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

- ☐ This report is based on a translation from the original language into the following language _____, which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

- ☐ the international application as originally filed/furnished
- ☒ the description:
- pages 1 - 11 _____ as originally filed/furnished
- pages* _____ received by this Authority on _____
- pages* _____ received by this Authority on _____
- ☒ the claims:
- pages _____ as originally filed/furnished
- pages* _____ as amended (together with any statement) under Article 19
- pages* 12 - 14 received by this Authority on 12.05.2004
- pages* _____ received by this Authority on _____
- ☒ the drawings:
- pages 1 - 5 _____ as originally filed/furnished
- pages* _____ received by this Authority on _____
- pages* _____ received by this Authority on _____
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to the sequence listing (*specify*): _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to the sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/IB 2003/003346

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

| | | | |
|-------------------------------|--------|-------------|-----|
| Novelty (N) | Claims | <u>1-28</u> | YES |
| | Claims | | NO |
| Inventive step (IS) | Claims | <u>1-28</u> | YES |
| | Claims | | NO |
| Industrial applicability (IA) | Claims | <u>1-28</u> | YES |
| | Claims | | NO |

2. Citations and explanations (Rule 70.7)

The following documents were cited in the International Search Report:

D1: US6385452 B1

D2: WO0235752 A2

D3: US6169899 B1

D1 relates to a telecommunication system for positioning a mobile station in a cellular network. The system comprises location measurement units. The location measurement units are responsible for obtaining positioning measurements and providing these measurements to a serving mobile location centre (SMLC) for use in calculating the location of mobile stations, (column 2 lines 41-54). A location services client (LCS) sends a positioning request to a SMLC, (column 5 lines 44-50). The SMLC has a timer.

D2 relates to a mobile station locating method in a cellular network. A location services arrangement (LSA) sends a request message to the VLR to obtain location information about a mobile station. The location information, subscriber status and the timestamp of the location information are returned to the LSA, (page 6 lines 10-15).

The LSA controls the reply and if it does not meet certain quality criteria then the mobile station is forced into an active mode and the mobile station can be positioned. The quality criteria can be that the information is too old, (page 7 lines 17-19).

.../...

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: Box V.

D3 describes that location information is time-stamped and stored in the VLR. The time-stamp is used to indicate the age of the information. A location application requesting the location information may determine the reliability of the information.

The claimed invention

The present invention relates to a method and apparatuses for providing the location of a mobile station in a mobile communications system. A network element, e.g. an MSC/VLR stores the last known location of each mobile station, together with the time at which that location was determined.

When a network element receives a request to position a mobile station, it is determined whether the mobile station is active or not. If the mobile station is active, the location of the mobile station is known. If the mobile station is idle, the time, stored in the network element, is compared to a threshold time limit. Only when the time is not within the threshold limit is the current location of the mobile station determined. Otherwise, the last determined location is provided.

Reasoned statement

None of the cited documents discloses the claimed invention. However, D2 has a network element, which provides a last known location if the time, at which a last known location of the mobile station was determined, is within a threshold time limit. On the other hand, the network element can not determine the time without polling another network element.

In the cited documents there are no suggestions leading a skilled person in the art to modify the network element in D2 towards the invention according to claims 1-28.

Accordingly, the invention defined in claims 1-28 is novel and is considered to involve an inventive step. The invention is industrially applicable.

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/IB 2003/003346

Box No. VI Certain documents cited

1. Certain published documents (Rule 70.10)

| Application No. Patent No. | Publication date (day/month/year) | Filing date (day/month/year) | Priority date (valid claim) (day/month/year) |
|-------------------------------|--------------------------------------|---------------------------------|---|
| EP 1349411 A1, E | 01.10.2003 | 18.02.2003 | 22.02.2002 |

2. Non-written disclosures (Rule 70.9)

| Kind of non-written disclosure | Date of non-written disclosure (day/month/year) | Date of written disclosure referring to non-written disclosure (day/month/year) |
|--------------------------------|--|---|
|--------------------------------|--|---|